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Indian Standard

**SPECIFICATION FOR DRUMS FITTED TO
CARGO AND MOORING WINCHES**

(Second Reprint OCTOBER 1991)

UDC 621.864:629.12

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BUREAU OF INDIAN STANDARDS

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NEW DELHI 110002

Indian Standard

SPECIFICATION FOR DRUMS FITTED TO CARGO AND MOORING WINCHES

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Indian Standard

SPECIFICATION FOR DRUMS FITTED TO CARGO AND MOORING WINCHES

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 22 May 1969, after the draft finalized by the Marine Engineering Sectional Committee had been approved by the Mechanical Engineering Division Council.

0.2 The drum sizes are selected to suit the different types of electrical and steam winches. For loads up to 10 tonnes, the short size of drums are used and for loads above 10 tonnes, the long size of drums are used. The tangential load of the uppermost layer of the cable wound on the drum will depend on the number of reevings in the derrick boom head block. Thus the selection of drum diameter for a particular type of winch will also depend on the number of reevings in the derrick boom head block. Design working stress on drum is based on the breaking strength of the wire rope which is permitted to be used with that drum.

0.3 In the preparation of this standard, considerable assistance has been derived from the following standards issued by Deutscher Normenausschuss:

DIN 84154-1966 Spillköpfe und zugehöriger Seilhaken (Windlass drums and rope hook)

DIN 84156-1966 Seiltrommeln für Ladewinden (Rope drums for cargo winch)

DIN 84157-1966 Seilhaken mit Befestigungsschraube für Seiltrommeln (Rope hook with securing bolt for rope drums)

0.4 This standard is one of a series of Indian Standards on winches. Other standards in the series are:

*IS : 5112-1969 General requirements and testing of ac cargo winches for shipboard use

IS : 5113-1969 General requirements and testing of ac mooring winches for shipboard use

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS : 2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Since revised.

†Rules for rounding off numerical values (revised).

1. SCOPE

1.1 This standard lays down the requirements for drums fitted to cargo and mooring winches.

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definitions shall apply.

2.1 Warping Drum (or Gypsy Head) — Drum used for warping of ropes for swinging of derrick booms or for mooring of ship.

2.2 Winding Drum — Barrels used for winding and unwinding of the cargo runner during raising and lowering of the loads.

2.3 Cargo Runner — Rope used for lifting and lowering of loads.

2.4 Nominal Diameter — The nominal diameter is the minimum diameter measured externally over the drum.

3. MATERIAL

3.1 The warping drums shall be made of cast iron of grade 15 conforming to IS : 210-1962* or fabricated by welding of steel plates conforming to IS : 2062-1962†.

3.2 The winding drums shall be fabricated by welding of steel plates conforming to IS : 2062-1962† or shall be made of cast iron of grade 15 conforming to IS : 210-1962*.

3.3 The attaching hook and fixing bolt shall be of forged steel conforming to IS : 2004-1962‡.

4. DIMENSIONS

4.1 The dimensions for winding drums and warping drums shall be as given in Tables 1 and 2 respectively.

4.2 The dimensions for attaching hook and fixing bolt and their assembly shall be as shown in Fig. 1.

4.3 The dimensions not shown in the tables and figures shall be in accordance with normal trade practice.

* Specification for grey iron castings (Since revised).

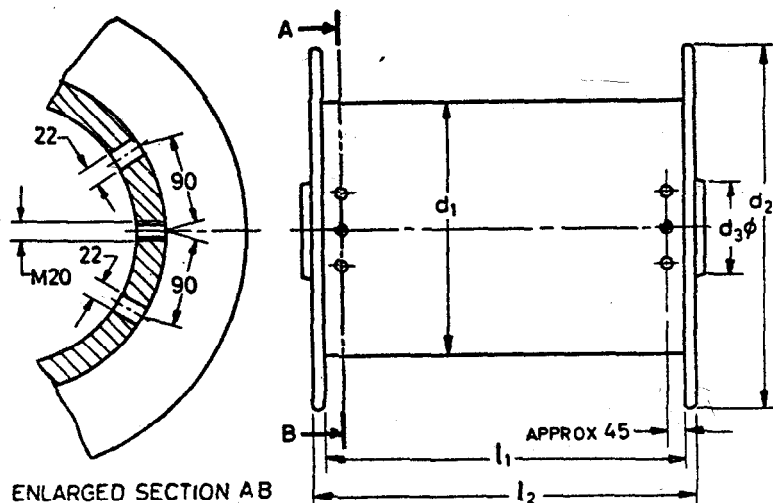
† Specification for structural steel (fusion welding quality) (Since revised).

‡ Specification for carbon steel forging for general engineering purposes (Since revised).

TABLE 1 DIMENSIONS FOR WINDING DRUMS

(Clause 4.1)

All dimensions in millimetres.

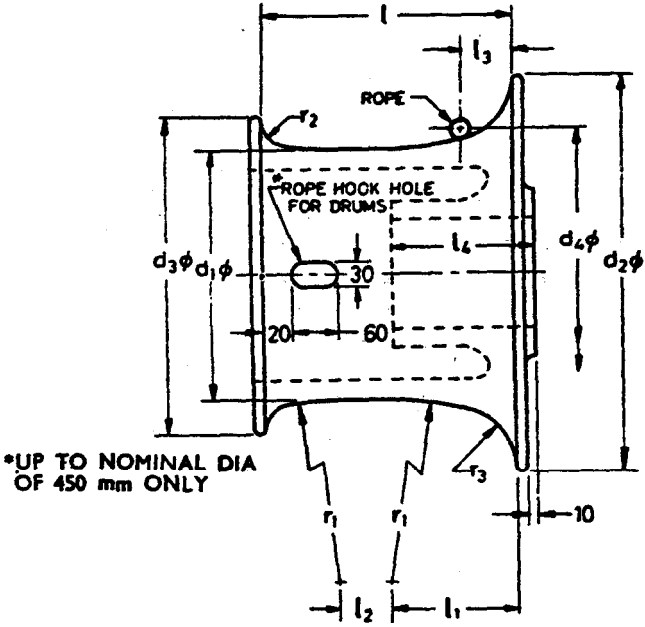


NOMINAL SIZE (USEFUL LOAD IN TONNES)		d_1	d_2 Min	d_3^*	l_1		l_2	
Short Drum	Long Drum				Short Drum	Long Drum	Short Drum	Long Drum
2	—	400	560	160	400	—	450	—
3	3	450	630	170	450	630	510	690
5	5	500	740	185	500	740	570	780
8	8	530	850	210	650	850	730	930
—	12	630	900	230	—	900	—	1 000

*Dimension d_3 is meant as a recommendation for drums which are either solidly fitted on the shaft or run-on friction bearings. On use of ball bearings d_3 has to be larger.

TABLE 2 DIMENSIONS FOR WARPING DRUMS
(Class 4.1)

All dimensions in millimetres.



NOMI- NAL DIA- METER d_1	DRUM l		d_2	d_3	d_4 APP- ROX	l_1	l_2 †	l_3 APP- ROX	l_4	r_1	r_2	r_3
	Short	Long										
320	250	—	500	400	365	160	—	45	200	400	36	80
400	320	400	630	500	460	200	80	56	200	500	45	100
450	360	450	710	560	510	220	90	63	200	560	50	110
500	400	500	800	630	575	250	100	71	300	630	56	125
560	450	560	900	710	640	280	110	80	300	710	63	140
630	500	630	1 000	800	730	320	130	90	300	800	71	160
800	630	—	1 250	1 000	930	400	—	110	400	1 000	90	200
1 000	800	—	1 600	1 250	1 165	500	—	140	400	1 250	110	260

†For long drums only.

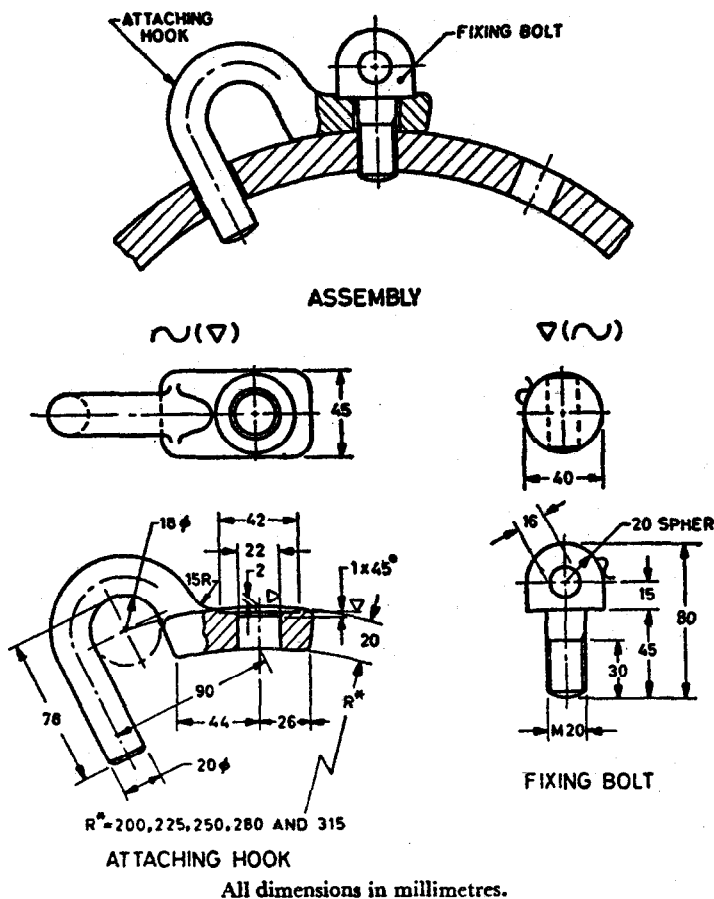


FIG. 1 ASSEMBLY AND DIMENSIONS FOR ATTACHING HOOKS AND FIXING BOLTS

5. TOLERANCES

5.1 The tolerances, in mm, of bollard castings and fillets shall conform to 'Indian Standard deviations for untoleranced dimensions of grey iron castings (under preparation)*.

5.2 Tolerances on dimensions of fabricated drums shall conform to coarse grade specified in IS : 2102-1962†.

*Since issued as IS : 5519-1969.

†Recommendations for machining deviations for dimensions without specified tolerances (first revision).

6. DESIGNATION

6.1 The drum shall be designated by its name, diameter and the number of this standard. In the case of winding drum, the length shall be indicated and in case warping drum indication shall be given as to whether drum is short or long.

Example:

A short warping drum having a diameter of 320 mm shall be designated as:

Warping Drum Short 320 IS : 5130

7. MARKING

7.1 The drums shall be marked with the designation on the outside of outer flange.

7.1.1 The drums may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act and the Rules and Regulations made thereunder. The ISI Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by ISI and operated by the producer. ISI marked products are also continuously checked by ISI for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

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